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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,366	11/12/2003	Hideaki Tsuda	1508.68727	6792

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EXAMINER

NGUYEN, THANH NHAN P

ART UNIT PAPER NUMBER

2871

DATE MAILED: 07/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/706,366

Applicant(s)

TSUDA, HIDEAKI

Examiner

(Nancy) Thanh-Nhan P. Nguyen

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 10-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: JP 4-095221

DETAILED ACTION

This communication is responsive to RCE dated 4/17/2006. Claims 1-8 and 10-16 are pending for the examination.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, and 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arakawa et al (US 6,621,550) in view of Manabe et al (JP 11-095221).

Regarding claim 1, Arakawa et al discloses a liquid crystal display panel, wherein the liquid crystal shows a nematic phase at an ordinary temperature and a dielectric anisotropy of the liquid crystal is negative, [see col. 2, lines 15-19].

Arakawa et al lacks disclosure of a liquid crystal display panel in which a liquid crystal into which an alignment control agent is added is filled between a pair of substrates to form a liquid crystal layer and an alignment regulate layer is formed on liquid crystal side surfaces of the pair of substrates respectively by causing the alignment control agent to adhere thereon, wherein the alignment regulate layer has a regulation power for aligning the molecules of the liquid crystal vertically to the substrate surface, and wherein a thickness of the alignment regulate layer is less than a thickness of the liquid crystal layer.

Manabe et al discloses a liquid crystal display panel in which a liquid crystal (7) into which an alignment control agent (6) is added is filled between a pair of substrates (1 and 5), [fig. 1c], to form a liquid crystal layer (7) and an alignment regulate layer (6), [fig. 1d], is formed on liquid crystal side surfaces of the pair of substrates respectively by causing the alignment control agent to adhere thereon, wherein the alignment regulate layer has a regulation power for aligning the molecules of the liquid crystal vertically [fig. 2a] to the substrate surface, and wherein a thickness of the alignment regulate layer is less than a thickness of the liquid crystal layer, [1d], for the benefit of decreasing the number of production stages and improving productivity yield, [Abstract]. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to form alignment film by added alignment control agent to liquid crystal by causing the alignment control agent to adhere on the substrate, (wherein the alignment regulate layer has a regulation power for aligning the molecules of the liquid crystal vertically to the substrate surface, and wherein a thickness of the alignment regulate layer is less than a thickness of the liquid crystal layer), for the benefit of decreasing the number of production stages and improving productivity yield.

Regarding claim 2, Arakawa et al discloses a nematic liquid crystal composition having a value of dielectric anisotropy $\Delta\epsilon$ within the range of -2 to -10, [col. 2, lines 15-19]. It has been judicially determined that overlapping ranges are at least obvious, [see MPEP 2144.05]. The range of the dielectric anisotropy of the liquid crystal is $\Delta\epsilon < -3$ would have been obvious to one of ordinary skill in the art. Further, when the dielectric

anisotropy is increased in the negative direction, driving at a voltage of as low as 5V or less becomes possible, [see col. 8, lines 3-6].

Claims 4 and 6 are met the discussion regarding claim 1 rejection above.

Claims 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arakawa et al in view of Manabe et al as discussed above, and further in view of Nam et al (US 2002/0039160).

Regarding claim 3, Arakawa et al lacks disclosure of acrylate monomer is used as the alignment control agent.

Nam et al discloses acrylate monomer is used as the alignment control agent for the benefit of increasing the cross linking index of the alignment film, [see par. 0048, and 0050]. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use acrylate monomer as the alignment control agent for the benefit of increasing the cross linking index of the alignment film.

Claim 5 is met the discussion regarding claim 3 rejection above.

Claims 7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arakawa et al in view of Manabe et al as discussed above, and further in view of Shibahara U.S. Patent Application Publication No. 2002/0008836.

Regarding claims 7 and 10, Arakawa et al lacks disclosure of the column-like spacers for maintaining an interval between the pair of substrates constant are arranged in areas between subpixels; wherein the column-like spacers are formed at a rate of one spacer to plural pixels.

Shibahara discloses the column-like spacers for maintaining an interval between the pair of substrates constant are arranged in areas between subpixels; wherein the column-like spacers are formed at a rate of one spacer to plural pixels, [see figs. 1 and 4], for the benefit of having the spacing between the spacers widened; causing the substrates to flex so as to track a dimensional change in the gap that accompanies a temperature change in the liquid crystal between the substrates, [see par. 0032]. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have column-like spacers formed at a rate of one spacer to plural pixels for the benefit of having the spacing between the spacers widened; causing the substrates to flex so as to track a dimensional change in the gap that accompanies a temperature change in the liquid crystal between the substrates.

Claims 8, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arakawa et al in view of Manabe et al as discussed above, and further in view of Sawasaki et al U.S. Patent Application Publication No. 2001/0026347.

Regarding claim 8, Arakawa lacks disclosure of the column-like spacers are formed by exposing and developing a photoresist.

Sawasaki et al discloses the spacers (25a) are formed by exposing and developing a photoresist (25) for the benefit of being able to have a uniform height and being possible to be arranged at predetermined positions, thus maintaining the cell gap constant over the entire display region and therefore improving the display quality, [see par. 0113]. Therefore, at the time the invention was made, it would have been obvious

to a person of ordinary skill in the art to have the column-like spacers are formed by exposing and developing a photoresist for the benefit of being able to have a uniform height and being possible to be arranged at predetermined positions, thus maintaining the cell gap constant over the entire display region and therefore improving the display quality.

Claim 11 is met the discussion regarding claim 8 rejection above.

Claim 12 is met the discussion regarding claims 11 and 3 rejection above.

Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arakawa et al in view of Manabe et al as discussed above, and further in view of Yamada et al U.S. Patent No. 5,729,318.

Regarding claim 13, Arakawa lacks disclosure of the liquid crystal contains a liquid crystal composition that includes fluorine.

Yamada et al discloses the liquid crystal contains a liquid crystal composition that includes fluorine for the benefit of having great characteristic such as excellent in chemical reaction resistance for the photopolymerization effect, [see col. 29, lines 45-50]. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have discloses the liquid crystal contains a liquid crystal composition that includes fluorine for the benefit of having great characteristic such as excellent in chemical reaction resistance for the photopolymerization effect.

Claim 14 is met the discussion regarding claims 4 and 13 rejection above.

Claim 15 is met the discussion regarding claims 7 and 13 rejection above.

Claim 16 is met the discussion regarding claims 11 and 13 rejection above.

Response to Arguments

Applicant's arguments with respect to claims 1-8 and 10-16 have been considered but are moot in view of the new ground(s) of rejection.

Contact Information


Any inquiry concerning this communication or earlier communications from the examiner should be directed to (Nancy) Thanh-Nhan P. Nguyen whose telephone number is 571-272-1673. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 571-272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

(Nancy) Thanh-Nhan P Nguyen
Examiner
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TW


ANDREW SCHECHTER
PRIMARY EXAMINER